

WHAT IS CLAIMED IS:

1. A bicycle crank arm apparatus comprising:
an axle having a first end portion and a second end portion, wherein the first end portion has an outer peripheral surface and a threaded inner peripheral surface;
an axle bolt having a threaded outer peripheral surface screwed into the threaded inner peripheral surface of the first end portion of the axle;
a crank arm having an axle mounting boss defining an opening for receiving the first end portion of the axle therein, wherein the axle mounting boss includes a first fastener for tightening the crank arm mounting boss around the first end portion of the axle; and
wherein the axle mounting boss is positioned axially inwardly of the axle bolt.
2. The apparatus according to claim 1 wherein the axle mounting boss includes a first mounting ear in close proximity to a second mounting ear, wherein the first fastener couples the first mounting ear to the second mounting ear.
3. The apparatus according to claim 2 wherein the first fastener tightens the first mounting ear towards the second mounting ear.
4. The apparatus according to claim 3 wherein the first mounting ear includes a first fastener opening, wherein the second mounting ear includes a second fastener opening, and wherein the first fastener is disposed in both the first fastener opening and the second fastener opening.
5. The apparatus according to claim 4 wherein the second fastener opening has a threaded inner peripheral surface, and wherein the first fastener comprises a first crank arm bolt that extends through the first fastener opening and screws into the second fastener opening.
6. The apparatus according to claim 5 wherein the first crank arm bolt includes a first bolt head that abuts against the first mounting ear.

7. The apparatus according to claim 6 wherein the first fastener opening is unthreaded.

8. The apparatus according to claim 4 wherein the second mounting ear includes a third fastener opening, wherein the first mounting ear includes a fourth fastener opening, and further comprising a second fastener disposed in both the third fastener opening and the fourth fastener opening.

9. The apparatus according to claim 8 wherein the second fastener opening has a threaded inner peripheral surface, wherein the fourth fastener opening has a threaded inner peripheral surface, wherein the first fastener comprises a first crank arm bolt that extends through the first fastener opening and screws into the second fastener opening, and wherein the second fastener comprises a second crank arm bolt that extends through the third fastener opening and screws into the fourth fastener opening.

10. The apparatus according to claim 9 wherein the first crank arm bolt includes a first bolt head that abuts against the first mounting ear, and wherein the second crank arm bolt includes a second bolt head that abuts against the second mounting ear.

11. The apparatus according to claim 10 wherein the first fastener opening is unthreaded, and wherein the third fastener opening is unthreaded.

12. An axle bolt comprising:

a bolt body having a threaded outer peripheral surface and an inner peripheral surface defining an opening;

a plurality of splines circumferentially disposed on the inner peripheral surface of the bolt body; and

a flange extending radially outwardly from the bolt body.

13. The bolt according to claim 12 wherein the flange is positioned at an end of the bolt body.

14. The bolt according to claim 13 wherein the plurality of splines are positioned at the end of the bolt body.

15. The bolt according to claim 14 wherein the flange has a knurled outer peripheral surface.

16. The bolt according to claim 15 wherein each of the plurality of splines comprises an arcuate projection.

17. The bolt according to claim 16 wherein there is exactly eight splines.

18. The bolt according to claim 12 wherein the plurality of splines are positioned at an end of the bolt body.

19. The bolt according to claim 12 wherein the flange has a knurled outer peripheral surface.

20. The bolt according to claim 12 wherein there is exactly eight splines.

21. The bolt according to claim 12 wherein each of the plurality of splines comprises an arcuate projection.

22. A tool for an axle bolt comprising:
a tool body;
a plurality of splines circumferentially disposed on and extending radially outwardly from the tool body; and
a tool operating member extending radially outwardly from the tool body.

23. The tool according to claim 22 wherein the tool operating member has a disk shape.

24. The tool according to claim 23 wherein the tool body extends from a side surface of the tool operating member.

25. The tool according to claim 24 wherein the tool operating member includes a knurled outer peripheral surface.

26. The tool according to claim 24 wherein the tool operating member includes a gripping rim extending from a side surface thereof.

27. The tool according to claim 26 wherein the gripping rim is disposed at a radially outermost portion of the tool operating member.

28. The tool according to claim 27 wherein the tool body extends from a first side surface of the tool operating member, and wherein the gripping rim extends from an opposite second side surface of the tool operating member.

29. The tool according to claim 28 wherein the gripping rim has a knurled outer peripheral surface.

30. The tool according to claim 29 wherein there is exactly eight splines.

31. A crank arm comprising:

a crank arm body having an axle mounting boss on a first end and a pedal mounting boss on a second end;

wherein the axle mounting boss defines an opening for receiving an axle therein;

wherein the axle mounting boss includes a first mounting ear in close proximity to a second mounting ear;

wherein the first mounting ear includes a first fastener opening;

wherein the second mounting ear includes a second fastener opening;

wherein the first mounting ear includes a third fastener opening in close proximity to

the first fastener opening; and

wherein the second mounting ear includes a fourth fastener opening disposed in close proximity to the second fastener opening.

32. The apparatus according to claim 31 wherein the second fastener opening has a threaded inner peripheral surface, and wherein the fourth fastener opening has a threaded inner peripheral surface.

33. The apparatus according to claim 32 wherein the first fastener opening is unthreaded, and wherein the third fastener opening is unthreaded.

34. A bicycle crank arm apparatus comprising:

an axle having a first end portion and a second end portion, wherein the first end portion has an outer peripheral surface and a threaded inner peripheral surface;

an axle bolt having a threaded outer peripheral surface screwed into the threaded inner peripheral surface of the first end portion of the axle;

a crank arm having an axle mounting boss defining an opening for receiving the first end portion of the axle therein, wherein the axle mounting boss includes a first mounting ear in close proximity to a second mounting ear; and

wherein the crank arm boss is positioned axially inwardly of the axle bolt.